

Point of Contact:
Thomas G. Larson, Ph.D.
703-308-7309
CM1, Rm. 6 B 01

Access DB#

67815

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's full Name: Everett White Examiner #: 67057 Date: 6/03/2002
Art Unit: 1623 Phone Number 308-4621 Serial Number: 09/763,380
Mail Box: CM1-8B19 and Bldg/Room Location: CM1-7B13 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be search Include the elected species or structures, key words, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: See Bib Data Sheet

Inventors (please provide full names): See Bib Data Sheet

Earliest priority Filing Date: See Bib Data Sheet

**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

Please search the process for oxidizing starch in Claims 1-7, the oxidized starch products of Claim 8, the binder of Claim 11, the adhesive of Claim 12, the warp yarn sizing of Claim 13, the coating for glass fibers of Claim 14, the abrasive paper additive of Claim 15, the food product additive of Claim 16, a blanket adhesive of Claim 17, and the emulsifying agent of Claim 18. A copy of the claims and abstract is provided.

The Bib Data Sheet which discloses the inventor names, title of the invention, and the earliest priority filing date is also provided.

Point of Contact:
Thomas G. Larson, Ph.D.
703-308-7309
CM1, Rm. 6 B 01

(5110)

JUN - 3 1

RECEIVED

STAFF USE ONLY

	Type of Search	Vendors and cost where applicable
Searcher: <u>Larson</u>	NA Sequence (#) _____	STN <u>4512</u>
Searcher Phone #: _____	AA Sequence (#) _____	Dialog _____
Searcher Location: _____	Structure (#) _____	Questel/Orbit _____
Date Searcher Picked Up: <u>6/7</u>	Bibliographic <input checked="" type="checkbox"/>	Dr. Link _____
Date Completed: <u>6/12</u>	Litigation _____	Lexis/Nexis _____
Searcher Prep & Review Time: <u>45</u>	Fulltext _____	Sequence Systems _____
Clerical prep time: _____	Patent Family _____	WWW/Internet _____
Online Time: <u>172</u>	Other _____	Other (specify) _____

Claims

1. A process of oxidizing starch wherein a root or tuber starch comprising at least 95 wt.% based on dry substance of the starch of amylopectin, or a derivative thereof, is treated with hydrogen peroxide in the presence of a catalyst, which catalyst comprises divalent copper ions.
2. A process according to claim 1, wherein the catalyst is a copper(II)chloride, copper(II)sulfate, copper(II)phosphate, copper(II)nitrate salt, copper(II)acetate salt, copper(II)bromide salt or a combination thereof.
3. A process according to any one of the preceding claims, wherein the catalyst is present in an amount ranging from about 5 ppb to about 5000 ppb, preferably from 100 to about 1000 ppb, on dry substance of starch.
4. A process according to any one of the preceding claims, wherein the action of the divalent copper ions is enhanced by one or more of calcium, vanadium, manganese, iron or tungsten ions.
5. A process according to any of the preceding claims, wherein the starch is potato starch or tapioca starch.
6. A process according to any one of the preceding claims, wherein the hydrogen peroxide is used in an amount ranging from 0.01 to 5.0 wt.%, preferably from 0.05 to 2.5 wt.% on dry substance of starch.
7. A process according to any one of the preceding claims, wherein the derivative of the starch is a cationic, anionic or amphoteric starch.
8. An oxidized starch obtainable by a process according to any one of the preceding claims.
9. Use of an oxidized starch according to claim 8 as a binder in paper coatings or surface sizings, as an adhesive, in warp yarn sizing, as a coating of glass fibers, as a blanket adhesive, and in abrasive paper or in food products.

Please amend claims 3-8 as follows:

3. (Amended) A process according to claim 1, wherein the catalyst is present in an amount ranging from about 5 ppb to about 5000 ppb, preferably from 100 ppb to about 1000 pbb, on dry substance of starch.

4. (Amended) A process according to claim 1, wherein the divalent copper ions are enhanced by one or more of calcium, vanadium, manganese, iron or tungsten ions.

5. (Amended) A process according to claim 1, wherein the starch is a potato starch or tapioca starch.

6. (Amended) A process according to claim 1, wherein the hydrogen peroxide is used in an amount ranging from 0.01 to 5.0 wt%, preferably from 0.05 to 2.5 wt%. on dry substance of starch.

7. (Amended) A process according to claim 1, wherein the derivative of the starch is a cationic, anionic or amphoteric starch.

8. (Amended) An oxidized starch obtainable by a process according to claim 1.

Please add new claims 11-18, as follows:

11. A binder in paper coatings or surface coatings comprising an oxidized starch according to claim 1.

12. An adhesive comprising an oxidized starch according to claim 1.

13. A warp yarn sizing comprising an oxidized starch according to claim 1.

14. A coating for glass fibers comprising an oxidized starch according to claim 1.

15. An abrasive paper additive comprising an oxidized starch according to claim 1.

16. A food product additive comprising an oxidized starch according to claim 1.

17. A blanket adhesive comprising an oxidized starch according to claim 1.

18. An emulsifying agent for an alkyl succinic anhydride, alkyl ketene dimer or alkyl isocyanate comprising an oxidized starch according to claim 1.

AFTER THE CLAIMS

Please insert, after the claims, on a separate sheet:

ABSTRACT

The invention relates a process of oxidizing starch wherein a root or tuber starch comprising at least 95 wt.% based on dry substance of the starch amylopectin, or a derivative thereof, is treated with hydrogen peroxide in the presence of a catalyst, which catalyst comprises divalent copper ions. The present invention further relates to an oxidizable starch obtainable by a process comprising treating a starch with

hydrogen peroxide in the presence of a catalyst, which catalyst comprises divalent copper ions.

For convenience purposes, a copy of the Abstract is attached hereto on a separate sheet.

REMARKS

Applicants have undertaken to cancel claims 9 and 10, amend claims 3-8, and add new claims 11-18 in the above-identified application in order to remove improper multiple dependencies and conform to U.S. practice. No new matter has been added. In addition, headings and an abstract have been added to the specification. Accordingly, entry hereof and examination on the merits are respectfully requested.

Respectfully submitted,



Lauren T. Emr
Registration No. 46,139
Agent for Applicants

HOFFMANN & BARON, LLP
6900 Jericho Turnpike
Syosset, New York 11791
(516) 822-3550

LTE/jjc

129242_